

Compatibility Determination

The National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee) states that “The Secretary is authorized, under regulations [s]he may prescribe, to – (A) permit the use of any area within the [National Wildlife Refuge] System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access wherever [s]he determines that such uses are compatible” and that “... the Secretary shall not initiate or permit a new use of a refuge or expand, renew, or extend an existing use of a refuge, unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety.” A compatible use is defined as “A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge.” The compatibility determination is to be a written determination signed and dated by the Refuge Manager and Regional Chief of the National Wildlife Refuge System, signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use.

Applicable compatibility regulations in 50 CFR Parts 25, 26, and 29 were published in the Federal Register October 18, 2000 (Vol. 65, No. 202, pp 62458 – 62483).

Use: Continuation of Hidden Lake Sockeye Salmon Enhancement, and Temporary Increase of Egg Take for Off-Refuge Stocking Program

Refuge: Kenai National Wildlife Refuge

Establishing and Acquisition Authorities: The Refuge was first established as the Kenai National Moose Range by Executive Order 8979 on December 16, 1941. The boundaries were modified, purposes expanded, and name changed to Kenai National Wildlife Refuge under the provisions of the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980 (Public Law 96-487 Stat. 2371).

Refuge Purposes: The Executive Order purpose was primarily to “... protect the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska...”.

ANILCA purposes for the Refuge include: “(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to moose, bear, mountain goats, Dall sheep, wolves and other furbearers, salmonids and other fish, waterfowl and other migratory and nonmigratory birds; (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; (iii) to ensure to

the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge; (iv) to provide in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and (v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife oriented recreation.”

The Wilderness Act of 1964 (Public Law 88-577) purposes are to secure an enduring resource of wilderness, to protect and preserve the wilderness character of areas within the National Wilderness Preservation System, and to administer this wilderness system for the use and enjoyment of the American people in a way that will leave them unimpaired for future use and enjoyment as wilderness.

Policy (FWS 603 2.8) directs that pre-ANILCA purposes remain in force and effect, except to the extent that they may be inconsistent with ANILCA or the Alaska Native Claims Settlement Act, and that such purposes only apply to those areas of the Refuge in existence prior to ANILCA. The Executive Order purpose to protect Kenai moose, however, is treated as complimentary to the broader ANILCA purpose of conserving fish and wildlife populations; therefore, no special attention is given the Executive Order purpose in this compatibility review process.

Sec. 4(a) of the Wilderness Act provides that the purposes of the Act are to be within and supplemental to the purposes for which national wildlife refuges are established and administered. These purposes are applied to the approximately 1.2 million acres of Congressionally designated wilderness within the Refuge. They are also applied to the remaining approximately 700,000 acres of Refuge lands (that are not designated as wilderness) in any way that the proposed use might affect the designated wilderness areas.

National Wildlife Refuge System Mission: The National Wildlife Refuge System Mission is “To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

Description of Use: The current Hidden Lake Sockeye Salmon Enhancement Project within the Refuge has been in operation in some form for approximately 29 years. The project now entails the take of adult sockeye salmon in mid- to late September each year in the number estimated to return 30,000 adults three years later (after one year in freshwater and two years in saltwater). This number is based on the spawning of one female with one male in the egg collection effort, estimated survival rates (green eggs to fry, 82%; fry to smolt, 24%; and smolt to adult, 41%), and estimated exploitation rates of returning fish (four-year floating average of estimated harvest rate, 72%). In recent years this has averaged about 660 fish which in turn equates to approximately 800,000 eggs.

The eggs are kept in a hatchery (Trail Lakes) off the Refuge and the resulting fry are stocked back into Hidden Lake the following May. By using such controlled conditions, survival of the young fish is much greater and therefore the subsequent return can be significantly enhanced over natural production. It is estimated that without the enhancement efforts that the natural return would be 6,000 to 7,000 or fewer sockeye salmon each year in the future. Estimates of escapement prior to any enhancement efforts are approximately 2,000 fish. Approximately 33,000 fish have returned on average since enhancement activities were initiated; additionally, an estimated 75,000 fish have been contributed annually to the subsistence, personal use, recreational, and commercial fishery in recent years as result of the enhancement effort.

The Alaska Department of Fish and Game (Department) is permitted by the Refuge to conduct the enhancement effort. In 1988, Cook Inlet Aquaculture Association (CIAA) began working cooperatively with the Department on the Hidden Lake Sockeye Salmon Enhancement Project through gamete collection, egg incubation, and fry stocking activities. By 1991, CIAA was completing all phases of the project under the Department's guidance. For data consistency, CIAA has completed the water chemistry and plankton analyses while the Department continues to conduct the adult scale analysis.

The project has received considerable attention during its nearly 30 years of operation including a number of focused research and monitoring projects. For more information on the basic enhancement project, its history and specifics of operation, one can refer to the May 2000 Refuge Environmental Assessment of the Hidden Lake Sockeye Salmon Enhancement Project, or to the Department's March 1999 Hidden Lake Sockeye Enhancement Project Technical Review.

In addition to the proposed continuation of the long-standing enhancement project at Hidden Lake, the Department has requested a temporary increase in the number of gametes to be collected from Hidden Lake, to support other non-Refuge sockeye projects within the Lower Cook Inlet area. Specifically, the proposal entails the take of approximately 4,000 additional adult sockeye salmon each autumn from Hidden Lake until 2008 or 2009. This additional take would produce approximately 5 million additional eggs which would be used to stock three Lower Cook Inlet Lakes Projects (Kirschner, Hazel, and Leisure Lakes) and to establish a returning brood stock to Tutka Bay Lagoon. After 2008 or 2009, the "run" to Tutka Bay Lagoon should be established and annually returning fish there would be used for subsequent stocking of the Lower Cook Inlet Lakes. The three lakes, and Tutka Bay Lagoon, are all located outside of the Refuge.

The Department's request for a permit amendment, to temporarily increase the number of sockeye salmon eggs to be collected from Hidden Lake, stems from the December 2003 Ninth Circuit Court of Appeals ruling against the Tustumena Sockeye Salmon Enhancement Project which was supplying the eggs necessary for the Lower Cook Inlet

Lakes Projects, in addition to enhancing the sockeye return to Bear Creek, a tributary to Tustumena Lake located within the Refuge.

Availability of Resources: The administrative costs borne by the Refuge for oversight of this project is minimal and should not change significantly with the proposed amendments that would temporarily increase the amount of salmon gametes collected from Hidden Lake. The Department remains responsible for all necessary monitoring of the project, and CIAA would conduct all of the additional field work.

In one year (1991) the projected return to Hidden Lake, due to the enhancement project, was so great that an emergency public dip net fishery was put in place on Hidden Creek. This cost the Refuge tens of thousands of dollars to administer; however, stocking rates have since been reduced and extreme returns of fish (which could threaten water quality and aquatic resources through changes in nutrient loading from decaying carcasses) are not expected. The current project, and proposed amendment, is not expected to create any significant need for Refuge funding or personnel.

Anticipated Impacts of the Use: Impacts from the project to Refuge resources are anticipated to be minor, but can be categorized into several areas. One of the primary concerns is how the use impacts the ability of the Refuge to conserve Hidden Lake salmon, and other biotic resources found within the area, to maintain natural diversity. Hidden Lake is one of the more studied systems in Alaska, in terms of fisheries enhancement, and best estimates suggest that the limits to the size of the sockeye salmon population sustainable there is primarily due to limited spawning habitat. Any more than about 10,000 salmon spawning in Hidden Lake are believed to do so without any significant net increase in production. "Extra" salmon, produced by the enhancement effort, will likely spawn as well, but survival is limited. These enhanced levels of fish do provide some food to fish and wildlife, such as bears, eagles, trout, and sculpins. The primary concern historically for the project has been the possibility of elevated numbers of returning salmon, in that at some point, extra rotting carcasses can change the nutrient levels in the lake to the degree that phytoplankton communities and other biotic factors could be substantially changed. Studies completed by the Department suggest that this threshold is somewhere above 30,000 to 50,000 returning adults; therefore, the Refuge has adopted the lower more conservative target to manage for 30,000 returning fish.

Understanding that there is some uncertainty on what natural diversity is for salmon in the area (given over a century of commercial fishing history in the area and other human-induced factors) the Refuge believes that protection of the natural diversity of Hidden Lake is accomplished through managing for a 30,000 fish escapement goal. Additionally, though it has not previously been a concern, the Refuge will also place a lower limit that would prohibit egg collection any given year when extremely poor returns are experienced.

Maintaining the genetic integrity of fish stocks is a concern shared by the Department and the Refuge, and straying of enhanced fish can cause long-term biological concerns as well as short-term management complications. Studies conducted by the Department, as a condition of the Refuge Special Use Permit, have not found significant straying from the Hidden Lake area. Genetic concerns are also generated in enhancement efforts, when managing for natural diversity, because of the high survival rates of the young from low numbers of parents. These concerns are reduced somewhat due to the fact that Hidden Lake fish are being used to enhance Hidden Lake (outside stocks are not used), but changes in gene frequency, which can result in the elimination of alleles from the population, remains a concern.

While the increased number of returning salmon can provide food for wildlife, it can also raise food levels to unnatural highs and concentrate wildlife. The primary concern with this issue is for both brown and black bears which congregate along Hidden Creek in the autumn to feed on the returning fish. Because of the high levels of public use in the area near trails, campgrounds, and Skilak Loop Road, public safety concerns have been considered. Stocking of fry has been moved across the lake and away from the boat ramp and campground to try and encourage returning adults to home in on those areas away from concentrations of people. This is the natural spawning area of the fish as well, and helps mimic natural conditions. Additionally, carcasses from the spawned fish are dumped in the lake to avoid concentrating fish waste along shoreline areas. To date, there have been no significant problems with human-bear encounters that can be attributed to the enhancement project, but it continues to be evaluated.

Increased numbers of fish returning to Hidden Lake can cause some increased fishing pressure by recreational fishermen in the area. This is only noticeable at the confluence of Hidden Creek and Skilak Lake. This area is accessible by boat on Skilak Lake, by drifting through the Kenai River Canyon to the lake, or by hiking via the Hidden Creek Trail. Some increased camping and day use by fishermen may result in concentrating people in the confluence area in late summer, but impacts have not been deemed significant. Those issues considered include: litter and human waste, snagging and other illegal behavior, increased risk to humans or bears from close encounters between humans and bears, damage to cultural sites or artifacts, and damage to soils and vegetation from trampling and camping practices. Monitoring of use levels and resulting impacts is ongoing.

Other issues from the Hidden Lake Sockeye Salmon Enhancement Project have been raised by the public, but do not have direct implications on Refuge purposes and compatibility. These include: 1) concerns over marketing “wild” Alaska salmon while a portion of the commercial product spend part of their life-cycle in the confines of a hatchery, 2) intercept of non-target fish (such as Kenai River king or coho salmon) caught in increased numbers because of increased commercial fishing time generated by enhanced numbers of target fish (sockeye salmon), and 3) overall philosophical concerns over managing for wild fish and natural conditions whenever possible. Additionally,

some of the same concerns have been generated for the Lower Cook Inlet Lakes Projects, as well as some uncertainty on what the long-term effects may be of establishing fish runs where they have not naturally occurred.

Public Review and Comment: A public notice (attached) was published in the legal section of the Anchorage Daily News on August 5, 2005 and in the Kenai Peninsula Clarion on August 9, 2005. The notice, along with a supplemental environmental assessment, was also included on the U.S. Fish and Wildlife Service web site and an electronic message of its posting was sent to 151 people included on a list server. Additionally, the notice was affixed in the entry area to the Refuge Visitor Center. The notice provided for a 30 + day public comment period. Comments were received from five organizations, the State of Alaska, and one individual.

CIAA, United Fishermen of Alaska (UFA), and Cook Inlet Fisherman's Fund, Inc. (CIFF) all wrote in support of the continuation of the existing Hidden Lake Enhancement Project in addition to the temporary increase in egg take from Hidden Lake to support Lower Cook Inlet sockeye salmon enhancement projects. CIAA commented that the Cook Inlet Salmon Plan 1981 – 2000 recognized that Hidden Lake's limited spawning habitat could not produce enough young sockeye salmon to fully utilize the rearing capacity of the lake, and that almost three decades of work since then has shown that assessment to be correct, and that Hidden Lake is one of the best understood salmon producing systems in the Cook Inlet drainage. CIAA concludes that the preferred alternative does not threaten the Hidden Lake system, but does expand the Cook Inlet salmon resource base and provides substantial benefit to salmon users. Similarly UFA supported the position of CIAA and felt that there was adequate and reliable scientific evidence that the action would not result in jeopardy to the sustainability of the fish stocks to the ecosystem of Hidden Lake. CIFF also acknowledged the well established Hidden Lake Project and its benefits to subsistence, personal use, recreational, and commercial salmon users, and concluded that the proposed additional egg take is consistent with the provisions of the National Wildlife Refuge System Improvement Act of 1997.

The Kenai River Sportfishing Association (KRSA) and Kenai River Professional Guide Association (KRPGA) both wrote in opposition to the proposed action. KRSA raised a primary question of whether administering a hatchery program fit with the core purpose of the Refuge to ensure biological diversity and cited reports of salmon hatcheries posing significant conservation risks to wild salmon in the Pacific Northwest. KRSA also raised concerns over wild sockeye salmon issues in the Kenai River System, impacts of the hatchery program on wild coho salmon, and the objectives and benefits of the Hidden Lake Enhancement Project. They acknowledged studies that have taken place but argue that the available information in the EA is not adequate to conclude that the project is consistent with the biological diversity and conservation purposes of the Refuge and recommended a precautionary approach in the absence of a more thorough risk-benefit evaluation. KRPGA raised four concerns that they felt deserved additional investigation

and evaluation: 1) continuation of the program may not be compatible with the biological and conservation purposes of the Refuge, 2) hatchery fish can pose long-term conservation risk to wild stocks and these risks have never been fully evaluated within the Kenai River system, 3) the continuing trend of high escapements and high returns of Kenai River sockeye salmon raises questions about the basis for the program which was started under a different set of conditions than exist today, and 4) the claim that the hatchery program, designed and operated for commercial fishing interests, is of anything more than marginal value to in-river users, is doubtful.

The State of Alaska, ANILCA Implementation Program, provided consolidated comments from the State's resource agencies. The comments concluded that the proposed action is consistent with the provisions of the National Wildlife Refuge System Improvement Act of 1997 and that only those uses on a refuge will be allowed that "will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge" and that Alternative 3 in the supplemental EA (the proposed action) meets this standard. They shared that the proposed permit amendment would provide additional fishing opportunities for subsistence, personal use, recreational, and commercial users and will have little or no impact to the fisheries resources of the system.

One e-mail was also received from a private citizen questioning how the project could be "found compatible with the natural diversity mandate for management of the Refuge, not just for the proposed expansion but for the project as it exists too."

Determination (check one below):

_____ Use is Not Compatible

____X____ Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Current Refuge Special Use Permit conditions include:

- 1) Only sockeye salmon fry from Hidden Lake may be stocked back into Hidden Lake.
- 2) Eggs can only be taken from adults, and fry may only be released, in the original location of spawners in Hidden Lake.
- 3) Eggs must be taken throughout the duration of the run.
- 4) Sex ratios for fertilization shall be one male to one female sockeye salmon for all eggs used in the Hidden Lake enhancement activity.

- 5) Brood fish must be collected randomly without particular selection for size or other phenotypic characteristics.
- 6) Fry must test negative for IHNV before release.
- 7) The fry plant into Hidden Lake, and subsequent egg collections within the permit period, will not exceed the number calculated to return 30,000 adult sockeye salmon (hatchery plus natural). The numbers are to be calculated based on a four-year floating average of survival from egg to fry, fry to smolt, and smolt to adult, and the ADF&G estimated harvest rate. To that end, the permittee agrees to collect no more than 800,000 eggs in 2005.
- 8) The permittee agrees, that over time, alternations will be made to the project towards a goal of 1:1 ratio of hatchery to wild fish.
- 9) Establishment and operation of any camps, weirs, or other structures will be done only with the concurrence of the Refuge Manager.
- 10) All released sockeye salmon fry will be marked by thermal otolith banding before release.
- 11) Adult sockeye salmon returning to Hidden Creek will be sampled to estimate the enhanced proportion of the run to within 5 % of the true contribution 95% of the time.
- 12) The permittee agrees to complete straying studies initiated in 1999. Future permits may be denied should straying exceed 2% into any receiving sockeye population.
- 13) The permittee agrees to continue limnology studies necessary to assess changes to water quality or zooplankton abundance as result of the Hidden Lake Enhancement Project.

Additional permit stipulations to be added to an amended Special Use Permit will include:

- 1) Additional egg take (beyond that necessary to collect 800,000 eggs for the Hidden Lake Sockeye Salmon Enhancement Project) is permitted as follow:

No more than 4,000 sockeye salmon, to collect and fertilize an estimated 5 million eggs, may be collected for Lower Cook Inlet Lakes stocking, and establishment of a brood stock to return to Tutka Bay Lagoon, in addition to the gametes collected for the Hidden Lake Sockeye Salmon Enhancement Project.

This additional egg collection is authorized in 2005 and is expected to be part of an annual permit until 2008 or 2009.

- 2) Only collections for the Hidden Lake Sockeye Salmon Enhancement Project are approved if the adult sockeye salmon escapement to Hidden Lake is from 3,000 to 10,000 fish. No collections are approved if the escapement is less than 3,000 fish.
- 3) Any problems with bears or other wildlife must be reported to the refuge manager within 24 hours.
- 4) An annual report is required at the end of the permit period, to be received before a new permit is issued. The report shall include: a) dates and description of camps used, b) dates and description of weir activities, c) dates and description of fry release activities, d) dates and description of adult salmon collection and disposition of carcasses, e) ultimate disposition of all eggs/fry, and description and results of any monitoring activities and studies related to the project.

These combined permit requirements should be sufficient to mitigate compatibility concerns and other potential impacts to Refuge resources, or provide information to Refuge staff necessary to support future management actions deemed necessary to ensure compatibility with Refuge purposes.

Justification: The basic Hidden Lake Enhancement Project has been operating on the Refuge for approximately 29 years and few impacts to Refuge resources have been documented. The primary motivation for continuing the use is to support State of Alaska Management Plans and Pacific salmon management goals. While some deference is afforded the Department in fisheries enhancement efforts, such activities still must be found to be compatible with Refuge purposes and the National Wildlife Refuge System mission to be legally permitted. The Department has worked well with the Refuge in providing data, participating in National Environmental Policy Act planning exercises, and completing monitoring studies to help facilitate the enhancement project in a way acceptable to the Refuge. This cooperation has continued over the course of the basic project, as well as in the recent request for a temporary increase in egg collection to meet management needs elsewhere.

Compatibility determinations of proposed or continuing uses of national wildlife refuges are not to consider the positive contributions of the use; rather they examine only the negative factors and then evaluate whether the use may materially interfere with or detract from the ability of the refuge to achieve its established purposes or System mission. As such, in a use such as fisheries enhancement, the compatibility determination does not consider the obvious social or economic values of creating more fish, or even how it may support some refuge purpose or System mission. It must only evaluate whether the use, as proposed, may cross the threshold of materially interfering with or detracting from purposes or mission.

The general conservation mission of the National Wildlife Refuge System, and specific pre-ANILCA purpose to protect Kenai moose, can be included reasonably within considerations given the first ANILCA created Refuge purpose (conservation of fish and wildlife and habitats). The purpose to fulfill international treaty obligations has no significant connections to fisheries enhancement activities associated with the Hidden Lake Project. Neither is there any significant consideration for impacting opportunities for research, interpretation, environmental education, land management training, or fish and wildlife oriented recreation. Potential impacts to water quality are mitigated by standards established to ensure enhanced numbers of salmon returning to Hidden Lake do not approach or exceed levels that could negatively impact water quality by nutrient loading from decaying carcasses. Hidden Lake is located outside of designated Wilderness areas within the Refuge and the project is not believed to pose any significant risk to Wilderness resources or the Refuge's ability to manage for Wilderness purposes.

The first and primary purpose of Kenai NWR (to conserve fish and wildlife populations and habitats in their natural diversity) is the purpose most challenged by fisheries enhancement activities. The impacts, however, are mitigated acceptably by the stipulations put in place to ensure that the enhancement efforts do not exceed stocking levels that would significantly alter Hidden Lake flora and fauna aquatic communities. Additionally, the true natural diversity of the lake system (without human-induced factors affecting the lake's fisheries) is largely unknown and unlikely to be understood adequately enough, or controlled completely enough, to fully manage it within an unaltered or natural state. Finally, the lake system, while an important component of the Kenai River watershed and Kenai NWR, is a relatively small proportion of the 2 million acre Refuge and Cook Inlet Sockeye Salmon population. Because of these considerations, it is determined that the proposed continuation of the Hidden Lake Sockeye Salmon Enhancement Project, including the temporary increase in egg collection to support off-Refuge projects, does not materially interfere with or detract from Refuge purposes or System mission.

Signature (Refuge Manager):

John J. West 9/14/05

Signature and Date

Concurrence (Regional Chief):
Acting

Danielle L. Perry 9/14/05

Signature and Date

Mandatory 10-year Re-evaluation Date:

September 14, 2015